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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,215	10/30/2000	Takehiko Ogura	311284/99	6075

7590 09/10/2004

McGinn & Gibb, P.C.
1701 Clarendon Boulevard, Suite 100
Arlington, VA 22209

EXAMINER	
PARK, CHAN S	
ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 09/10/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
SEP 2 3 2004
Technology Center 2600

Office Action Summary	Application No.	Applicant(s)	
	09/698,215	OGURA, TAKEHIKO	
	Examiner	Art Unit	
	CHAN S PARK	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-10* is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☒ Claim(s) *2-6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2, 4 & 5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. Initialed and dated copies of Applicant's IDS forms 1449, Paper Nos. 2, 4 & 5, are attached to the instant Office action.

Drawings

2. Figures 12-16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admitted Prior Art of Ogura Japanese Patent Laid-Open Publication No. 10-329369 which was published on 12/15/98.

3. With respect to claim 1, Ogura discloses a printer which draws page data for outputting one page at a time, the page data being edited from line printer output format to a page format based on format information, comprising:

one master board and one or more slave boards (fig. 1) each executing:

pre-editing processing in which a temporary page change position delimiting pages is calculated with the data unedited (pre-editing of the first page by slave board B3 before the editing processing in fig. 16 in the Background of the Specification);

editing processing in which data in a next page following the temporary page change position is edited based on the format information to define an actual page change position (page 2, line 28-29 in the Background of the Specification and paragraph 12 of Ogura) and the temporary page change position is corrected by the actual page change position to define the page data of the next page (page 3, line 12-15 in the Background of the Specification); and

drawing processing in which the page data is drawn (drawing units B8 and B13),

wherein said master board and slave boards execute the pre-editing processing of the data before the editing processing and the drawing processing (paragraph 11 of Ogura).

Referring to page 3, line 12-15 in the Background of the Specification, the Admitted Prior Art acknowledges that "[a]fter the editing processing is completed, changed information is written back into the format information storage unit B6 or B11 and the editing processing of the next page starts by referring to that information." Moreover, referring to page 2, line 30 – page 3, line2, it states "[e]dited and *updated* format information and *page change information* are stored in the format information storage unit B6 or B11." Thus, it indicates that the changed format information acts like the actual page change position to define the page data of the next page. Additionally, since the actual page change position replaces the temporary change position's role to provide correct page change information, it is concluded that the page change position is corrected/updated by the actual page change position. Also, since the page change position is updated by the actual page change position, the temporary page change information calculated during the pre-editing processing becomes meaningless.

Allowable Subject Matter

4. Claims 7-10 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The prior art of record do not teach or suggest the limitation for a printer wherein, when a pre-editing unit of a first board completes first pre-editing processing, a pre-editing unit of a second board where none of pre-editing processing, editing processing, and drawing processing is performed starts pre-editing processing in which, even if the first editing processing calculating an actual page change position of a page whose temporary page change position was calculated by the first pre-editing processing is not yet completed, a temporary page change position of a page beginning with the temporary page change position calculated by the first pre-editing processing is calculated.

6. Some of the prior art related to the ink-jet recording apparatus are cited and detailed below which fail to teach the limitation of independent claim 7 as stated above. The most relevant prior art Ogura discloses a printer comprising:

two or more boards, each comprising:

a pre-editing unit which performs pre-editing processing in which, in order to delimit received data into pages, format information is extracted from a start of non-delimited data beginning with the start of the received data and a temporary page change position is calculated, said temporary page change position being a trailing end of a page whose leading end is the start of the non-delimited data;

an editing unit which performs editing processing in which data following the temporary page change position is edited and an actual page change position is calculated to output editing data of pages, said actual page change position being an actual trailing end of the page whose leading end is the temporary page change position; and

a drawing unit which performs drawing processing in which the edited data is drawn and video output data is generated.

However, Ogura fails to teach or suggest the claimed printer wherein, when a pre-editing unit of a first board completes first pre-editing processing, a pre-editing unit of a second board where none of pre-editing processing, editing processing, and drawing processing is performed starts pre-editing processing in which, even if the first editing processing calculating an actual page change position of a page whose temporary page change position was calculated by the first pre-editing processing is not yet completed, a temporary page change position of a page beginning with the temporary page change position calculated by the first pre-editing processing is calculated.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHAN S PARK whose telephone number is (703) 305-2448. The examiner can normally be reached on M-F 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chan S. Park
Examiner
Art Unit 2622

csp
August 30, 2004

EDWARD COLES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional)	Application Number
31128[illegible]	09/698,215
Applicant(s)	
Takehiko Ogura	
Filing Date	**Group Art Unit**
October 30, 2000	2622

OIPE JC171
DEC 18 2003
PATENT & TRADEMARK OFFICE

RECEIVED
DEC 19 2003
Technology Center 2600

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation YES	Translation NO
CP		2001-51960	02/23/2001	Japan			ABS	
CP		2000-165652	06/16/2000	Japan			ABS	
CP		2000-253241	09/14/2000	Japan			ABS	
CP		10-11363	01/16/1998	Japan			ABS	
CP		2000-68999	03/03/2000	Japan			ABS	

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

		Japanese Office Action dated September 24, 2003.

EXAMINER	DATE CONSIDERED
Chau Pham	8/30/04

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

OIPE JC24 NOV 21 2002 PATENT & TRADEMARK OFFICE

Docket Number (Optional)	Application Number
31128[redacted]	09/698,215
Applicant(s)	
Takehiko OGURA	
Filing Date	**Group Art Unit**
October 30, 2000	2622

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

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NOV 26 2002
Technology Center 2600

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation YES	Translation NO
CP		6-259204	9/16/94	Japan			ABS	
CP		2000-168172	6/20/00	Japan			ABS	

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

		Japanese Office Action dated September 24, 2002, with partial English translation.

EXAMINER	DATE CONSIDERED
Chau Pate	8/30/04

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional)	Application Number
311284	NEW
Applicant(s)	
Takehiko OGURA	
Filing Date	**Group Art Unit**
October 30, 2000	Not Assigned

JC931 U.S. PTO 09/698215

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation YES	Translation NO
CP		10-329369	12/15/98	JAPAN				✓
CP		5-201077	08/10/93	JAPAN				✓

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

EXAMINER	DATE CONSIDERED
Chan Park	8/30/04

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Notice of References Cited	Application/Control No. 09/698,215	Applicant(s)/Patent Under Reexamination OGURA, TAKEHIKO	
	Examiner CHAN S PARK	Art Unit 2622	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	JP 10329369 A	12-1998	Japan	OGURA, TAKEHIKO	B41J 05/30
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **10-329369**

(43)Date of publication of application : **15.12.1998**

(51)Int.Cl. **B41J 5/30**
G06F 3/12

(21)Application number : **09-143616**

(22)Date of filing : **02.06.1997**

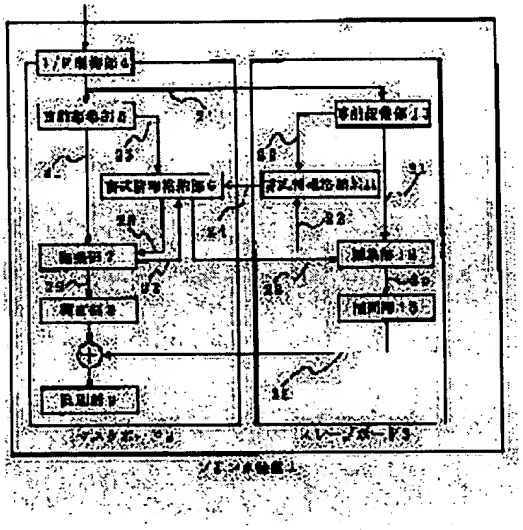
(71)Applicant : **NEC DATA TERMINAL LTD**

(72)Inventor : **OGURA TAKEHIKO**

(54) PRINTER

(57)Abstract:

PROBLEM TO BE SOLVED: To improve a performance of the printer by a method wherein editing and drawing are operated in parallel by each of CPUs by each page. SOLUTION: Each of a master board 2 and a slave board 3 comprises preliminary editing sections 5, 10 that execute an operation for format information and a page completion control command before an editing operation, format information storing sections 6, 11 that store the format information of a page at a time before the editing operation, editing sections 7, 12 that execute a real editing operation by each page and drawing sections 8, 13 that execute a drawing operation. The master board 2 further comprises an I/F control section 4 that executes controlling of receiving of data from a host device and a printing section 9 that executes video data outputting and page management.



LEGAL STATUS

[Date of request for examination] 02.06.1997

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or

application converted registration]

[Date of final disposal for application]

[Patent number] 2937945

[Date of registration] 11.06.1999

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the printer equipment which carries out parallel processing of the received data by each CPU per page.
[0002]
[Description of the Prior Art] There are JP,5-201077,A and JP,4-22648,A as an example this kind of technique is indicated to be. When performing parallel processing in a former official report, two or more drawing sections are prepared in it, and the method which aims at an improvement of the printing processing time is indicated by by carrying out parallel processing of the drawing processing according to the load of the drawing processing in the same page. Moreover, the method which carries out parallel processing of drawing processing and the printing processing to it per page when performing parallel processing in a latter official report is indicated.
[0003] When processing is explained with reference to a drawing, drawing 5 is the block diagram showing one example of the conventional technique. Drawing 6 is a timing diagram which shows actuation of one example of the conventional technique. The drawing management task 3210 and the individual drawing tasks 3211-3213 consist of another CPUs. The drawing management task 3210 is a method which detects only a drawing attribute parameter and a page break before real drawing in the form of empty drawing, passes data to the individual drawing tasks 3211-3213 per page, and performs parallel processing.
[0004]
[Problem(s) to be Solved by the Invention] When it is going to perform parallel processing in the conventional technique, in order to surely detect a page break from received data and to divide data per page, in the case of data without a page break, the load focused on one processor and there was a trouble that the engine performance fell.
[0005] It is because there is no page break, the division piece of a page is not known unless it comes out after actually editing when data carry out bottom margin over and carry out a newpage, and the information is not made to reflect in real drawing of degree page.
[0006] The purpose of this invention does not have a page break, prevents a load focusing on 1CPU which was dividing per page and carrying out parallel processing of the edit / drawing processing for every CPU also to received data which carry out a newpage by bottom margin over, and was a trouble in the conventional technique, and is to offer the printer equipment which raises the processing engine performance.

[0007]
[Means for Solving the Problem] The printer equipment of this invention carries out parallel processing of the received data by each CPU per page. More specifically, it has a means by which firmware performs retrieval of the form information of received data, and a page conclusion control code, a means to manage the form information of a 1 page [of the page always processed by self-CPU] before, and a means to process by arranging edit / drawing processing in parallel per page by two or more CPUs.
[0008] This invention is firmware and searches only received data to form information and a page conclusion control code rather than actual edit processing before. For this reason, it becomes possible to divide received data per page, and the processing after edit processing is arranged in parallel, and can be performed. Moreover, in order to take the synchronization of the searched form information, the centralized control of form information is performed by the CPU subordinate called a master board. By doing in this way, the newest (form information until 1 page before editing by self-CPU) can always be referred to under the command of CPU called a slave board.
[0009]
[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained with reference to a drawing.
[0010] Drawing 1 is the block diagram showing one example of the printer equipment of this invention, and drawing 2 is a timing diagram which shows actuation of one example of this invention. Reference of drawing 1 constitutes the printer equipment 1 of this invention from a master board 2 and a slave board 3. The master board 2 and the slave board 3 operate by separate CPU, and parallel processing is possible for them. Moreover, the difference on a configuration is the point that there is nothing on the slave board 3 to there being the I/F control section 4 and the printing section 9 in the master board 2.
[0011] Received data 21 are stored in a receive buffer through the I/F control section 4 of the master board 2 from a high order host. As for the stored data, detection of form information and a page conclusion control code is performed in the pre-edit sections 5 and 10. It has the pre-edit section in the master board 2 and the slave board 3 for retrieving information 1 page before the page which is going to perform edit processing in the editorial departments 7 or 12 after this, respectively. (However, since the data of a front page do not exist about the 1st page, nothing is processed.) This can distribute the load of processing of a pre-edit. Moreover, since the control-code information management and processing to search are performed by firmware, there is an advantage into which it can change easily.
[0012] The searched form information is stored in the form information storing sections 6 or 11. As information stored, the character decoration, a character size, alphabetic character line feed width of face, a typeface, a paper size, the printing direction, copy number of sheets, and the address that detected the control code about form and an external character from the receive buffer further are stored in a pointer format. Once such information is set up, it can consider a clear demand and the case where information is succeeded ranging over two or more pages since it is continued until another parameter is newly set up by the same control code. Therefore, a printing result will become inaccurate, when only a page conclusion control code is detected simply and the data for 1 page are made to process by another CPU. In order to prevent it, informational storing is needed in advance. As storing information on other, the information on whether edit processing was completed by the page conclusion control code and the received-data 21 throat top is stored in a pointer

format. The centralized control of such information is carried out in the form information storing section 6, and the information 1 page before starting edit processing from now on is stored. getting it blocked -- since one of CPUs always stores the information in front of 1 page, all the information on the page before starting edit processing will be stored in the condition of the information on past from the newest information.

[0013] In the editorial departments 7 and 12, edit processing is started with reference to received data 21 and the form information storing section 6. Edit is completed, in the case of the master board 2, it is stored in the form information storing section 6, and, in the case of the slave board 3, the edited receiving data address and form information which were updated are stored in the form information storing section 11. It is because not storing in the form information storing section 6 directly at the time of the slave board 3 overwrites information while other CPUs are referring to the information on the form information storing section 6, and it becomes the cause of malfunction. Therefore, when the edit processing other CPUs of whose are the last pages is finished and it stops referring to the information on the form information storing section 6, the form information transfer request 24 is received, the information on the form information storing section 11 is copied to the form information storing section 6, and an informational synchronization is maintained.

[0014] When the newpage of another purpose which stores the form information after the completion of edit is not carried out with page conclusion control command, but it is accompanied by the newpage by automatic carriage return and line feed, and you are going to make it print a big alphabetic character and bottom margin over is specifically carried out, the case where the result of having carried out automatic carriage return and line feed by right margin over is bottom margin over etc. corresponds to this. It is for preventing the edit starting position of degree page becoming inaccurate.

[0015] The edited data 25 generate video outlet data as drawn data 26 in the drawing sections 8 and 13. The printing section 9 performs that it carries out the DMA output request of the video data for the drawn data 26 to an engine to reception and sequence management of a page.

[0016] Actuation of one example of this invention is explained with reference to the timing diagram of drawing 2 . It is the master board 2 about the 1st page, and drawing 2 is the slave board 3 about the 2nd page, henceforth, it is the master board 2 about a recto, and shows the case where an even-numbered page is processed on the slave board 3.

[0017] In the master board 2, in the pre-edit section 5, the received data 21 received by the I/F control section 4 shown in drawing 1 process nothing, but are passed to the editorial department 7. Moreover, the control code of the page [1st] form information and a page conclusion is searched with the slave board 3. The timing to which the slave board 3 starts edit processing of the 2nd page is, after updating the address of the received data 21 which edit processing completed in the editorial department 7 of the master board 2, and the form information and edit which were changed after edit completed in the form information storing section 6. At this time, the form information reference demand 23 is received for the first time, and the slave board 3 starts edit processing in the editorial department 12 based on the information on the form information storing section 6, and the page [2nd] received data 21.

[0018] The form information updated when edit was completed is once written in the form information storing section 11, when edit processing of the 1st page is completed

on the master board 2, the form information transfer request 24 is received, and the newest information is copied to the form information storing section 6 in the master board 2.
[0019] When the slave board 3 starts edit processing of the 2nd page, the master board 2 performs drawing processing for the data 25 edited [page / 1st] in reception and the drawing section 8 from the editorial department 7. Completion of drawing passes the drawn data 26 to the printing section 9. The printing section 9 performs a DMA output request for a video data to an engine. Next, it checks that the pre-edit processing of the 1st page from a slave board has been completed, and pre-edit processing of the 2nd page is started.
[0020] Henceforth, when pre-edit processing of the last page has ended pre-edit processing initiation timing and the video DMA output request of the last page is started, parallel processing in a page unit is performed, taking timing in the condition of the time of edit processing of the last page having completed edit processing initiation timing. Thus, the form information storing section 6 in the master board 2 has played the important role which takes the synchronization of not only the renewal of the form information after edit but pre-edit processing and edit processing initiation.
[0021] Next, the 2nd example of this invention is explained with reference to a drawing. Drawing 3 is the block diagram showing other examples of the printer equipment of this invention. Drawing 4 is a timing diagram which shows actuation of other examples of this invention. A different point from drawing 1 is a point that the slave board consists of n sheets. About timing, it is the same as that of drawing 2 . However, although the sequence to process serves as a master board -> slave board 1 -> slave board 2 -> slave board n-1 -> slave board n-> master board in drawing 4 , since processing of degree page is performed in fact to the board which printing processing completed, it is irregular in the sequence of processing. By extending n slave boards like this invention, the processing engine performance per 1CPU becomes engine-performance/(master board (1)+ slave board (n)) in approximation.
[0022] Furthermore, it is the approach of giving the printing section 9 to each slave board, connecting an engine to each as a modification of this example, and realizing processing speed of processing engine-performance x per 1CPU (board number of sheets). Moreover, as another modification, it is the configuration of a master board and three slave boards, and is the approach of making parallel processing carrying out to the condition of three primary colors (MAZENDA, yellow, cyanogen) and black for every color by searching color data as retrieval information which performs a pre-edit, and realizing improvement in the speed of color printing.
[0023]
[Effect of the Invention] Since the form information which edit processing of the form information to the last page detected by pre-edit processing and the present page completed this invention, and was changed is made to reflect in edit processing of degree page and the newpage by the bottom margin can also be recognized as explained above There is no page break, page management can be performed also to received data which carry out a newpage by bottom margin over, edit / drawing processing in a page unit is attained by this, and it has the effectiveness that the processing engine performance can be raised.
[0024] Moreover, this invention has the effectiveness that the load per 1CPU becomes engine-performance/(master board (1)+ slave board (n)) in approximation only by increasing the number of sheets of a slave board, without a load's being able to distribute equally and making a change on a configuration, since the processing in

connection with edit and drawing is the same as the ability to carry out the parallel processing of all the data per [above-mentioned] page with a master board and a slave board.

[Translation done.]